

Healthcare transformation, we'll take you...

**AGFA**   
HealthCare

# THERE

Edition 4

**8 HOSPITAL-WIDE ONLINE ACCESS**  
to cardiology information  
at Belgian hospital

**15 DX-S CR SYSTEM**  
closes the CR/DR gap in  
chiropractic clinic in Denmark

**22 SLOVENIA'S FIRST PACS**  
improves radiological  
staff productivity by 40%

**25 IMPAX PACS INTEGRATES CROATIAN**  
**LINGUISTIC REQUIREMENTS**  
with HIS and nationwide EPR

**30 TAILOR-MADE CR/DR SOLUTIONS**  
help to fight tuberculosis

**INTERVIEWS INSIDE WITH:**

**Volker Wetekam,**  
Vice President of  
Agfa HealthCare's IT Division  
**Prof. Christian Herold,**  
Chairman of the  
Department of Radiology,  
Medical University of Vienna  
**Prof. Rademakers,**  
Medical Director,  
University Hospital Leuven



# TABLE OF CONTENTS

- 4 A HEALTHCARE REVOLUTION: PACS DRIVING UNPRECEDENTED QUALITY OF CARE**  
Interview with Volker Wetekam, Vice President of Agfa HealthCare's IT Division
- 7 DELIVERING SOLUTIONS IN AN INCREASINGLY COMPLEX ENVIRONMENT**  
Interview with Dr. Christian Herold, Chairman of the Department of Radiology, Medical University of Vienna
- 8 HOSPITAL-WIDE ONLINE ACCESS TO RADIOLOGY INFORMATION AT THE AZ IMELDA HOSPITAL IN BELGIUM**  
IMPAX Cardiovascular from Agfa HealthCare maximizes workflow and allows increased efficiency of care processes

## AGFA HEALTHCARE EDITORIAL TEAM

Eric Maurincomme, Editor-in-Chief  
Frederique Depraetere, Managing Editor  
Birgitte Baten, Senior Editor

## CONTENT & DISTRIBUTION

Agfa HealthCare NV  
Septestraat 27  
2640 Mortsels  
Belgium

## PRODUCTION

Livingstone NV  
Kortrijksesteenweg 88  
9830 Sint-Martens-Latem  
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Oudestraat 19  
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- 11 NEWS FROM AGFA HEALTHCARE**
- 12 ON-SITE OCCUPATIONAL HEALTH CENTER RELIES ON AGFA HEALTHCARE'S PROFESSIONALISM AND EFFICIENT SERVICE IN ITS MOVE TO DIGITAL X-RAY CHEST SCREENING OF EMPLOYEES**  
Impala Platinum Refinery, the world's second largest platinum producer, invested in Agfa HealthCare's CR and IMPAX PACS solutions to perform obligatory health checks on its employees
- 15 SUPERIOR IMAGE QUALITY OF DX-S CR SYSTEM WITH MUSICA<sup>2</sup> CLOSES THE CR/DR GAP IN DENMARK'S LARGEST CHIROPRACTIC CLINIC**  
Kiropraktisk Klinik Herning is the nation's first and only chiropractic clinic to use Agfa HealthCare's DX-S CR system. The CR image quality is markedly improved and superior to low-end direct radiography.
- 17 RADIOLOGY IT – QUO VADIS?**  
Paul Varghese, M.D., Medical Director, Cardiovascular Imaging Informatics, Agfa HealthCare  
Ciprian Albu, M.D., Associate Medical Director, Clinical Applications (Cardiology), Agfa HealthCare, MBA
- 19 AGFA HEALTHCARE EXPANDS VENDOR COMPATIBILITY WITH LATEST RELEASE OF IMPAX HEARTSTATION ECG MANAGEMENT SOLUTION**
- 19 AGFA HEALTHCARE INKS AGREEMENT WITH BELGIAN ZNA HOSPITAL GROUP TO DELIVER ITS IMPAX 6 AS A SERVICE**
- 20 IMPROVING EFFICIENCY IN RADIOLOGY WITH RADIOLOGY PACS AND CVIS**  
Interview with Prof. Dr. Frank Rademakers, Medical Director University Hospital Leuven
- 22 SLOVENIA'S FIRST PACS IMPROVES RADIOLOGICAL STAFF PRODUCTIVITY AT IZOLA GENERAL BY 40%**  
Nation's leading center for non-invasive cardiac CT regains profitability by using Agfa HealthCare's IMPAX PACS to integrate images and data throughout facility as well as to physicians' homes
- 25 IMPAX PACS' UNIQUE ARCHITECTURE INTEGRATES COMPLEX CROATIAN LINGUISTIC REQUIREMENTS WITH HIS AND NATIONWIDE EPR AT ZADAR GENERAL HOSPITAL**  
EPR and HIS integration, alphabet compatibility and enterprise-wide training in digital workflows are among the unique challenges met by Agfa HealthCare
- 27 NIEDERÖSTERREICH STATE GOVERNMENT CHOOSES AGFA HEALTHCARE'S TAILOR-MADE AND USER FRIENDLY CR/DR SOLUTIONS TO HELP FIGHT TUBERCULOSIS**  
X-ray buses equipped with CR and DR systems drive through the Niederösterreich district to detect tuberculosis
- 30 CR SOLUTION AT ISLE OF WIGHT MUSIC FESTIVAL REDUCES AMBULANCE TRANSPORT OF INJURED FANS**  
Agfa HealthCare's DX-S CR solution helps NHS hospital cut dose with image quality comparable to DR, while its flexibility supports x-ray service on festival site

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## DEAR READER,

Welcome to the fourth edition of Agfa HealthCare's THERE magazine. This publication aims to provide you with in-depth, contemporary information on trends and events impacting healthcare and society at large.

Today's healthcare market is more than ever influenced by a number of external factors that are reshaping the way in which care providers deliver medical services. Driven by the current economic climate and increasing stress on the sector to be more efficient, cost savings are only some of the pressures faced by the sector as a whole. More informed and opinionated, today's patient is seeking better healthcare delivery, driven by consumer demand for more comfort and faster and more efficient services. As a result, healthcare providers are continuously aiming for higher quality, faster service, better outcomes, and increased patient satisfaction at lower cost. To meet these ever increasing complex clinical and patient demands, hospitals and healthcare facilities around the world are rapidly evolving from analog to digital to IT solutions, which leads to more efficient, streamlined and cost-effective care.

Agfa HealthCare has understood this and THERE is an integral part of our efforts to share our understanding with you through case-studies, opinion pieces, interviews and general information that may benefit your daily work.

For more information and details, I invite you to read on. Should you be interested to receive copies of our future magazine editions by post, we welcome your request to be added to our mailing list via our website on [www.agfa.com/THERE](http://www.agfa.com/THERE).

HAPPY READING



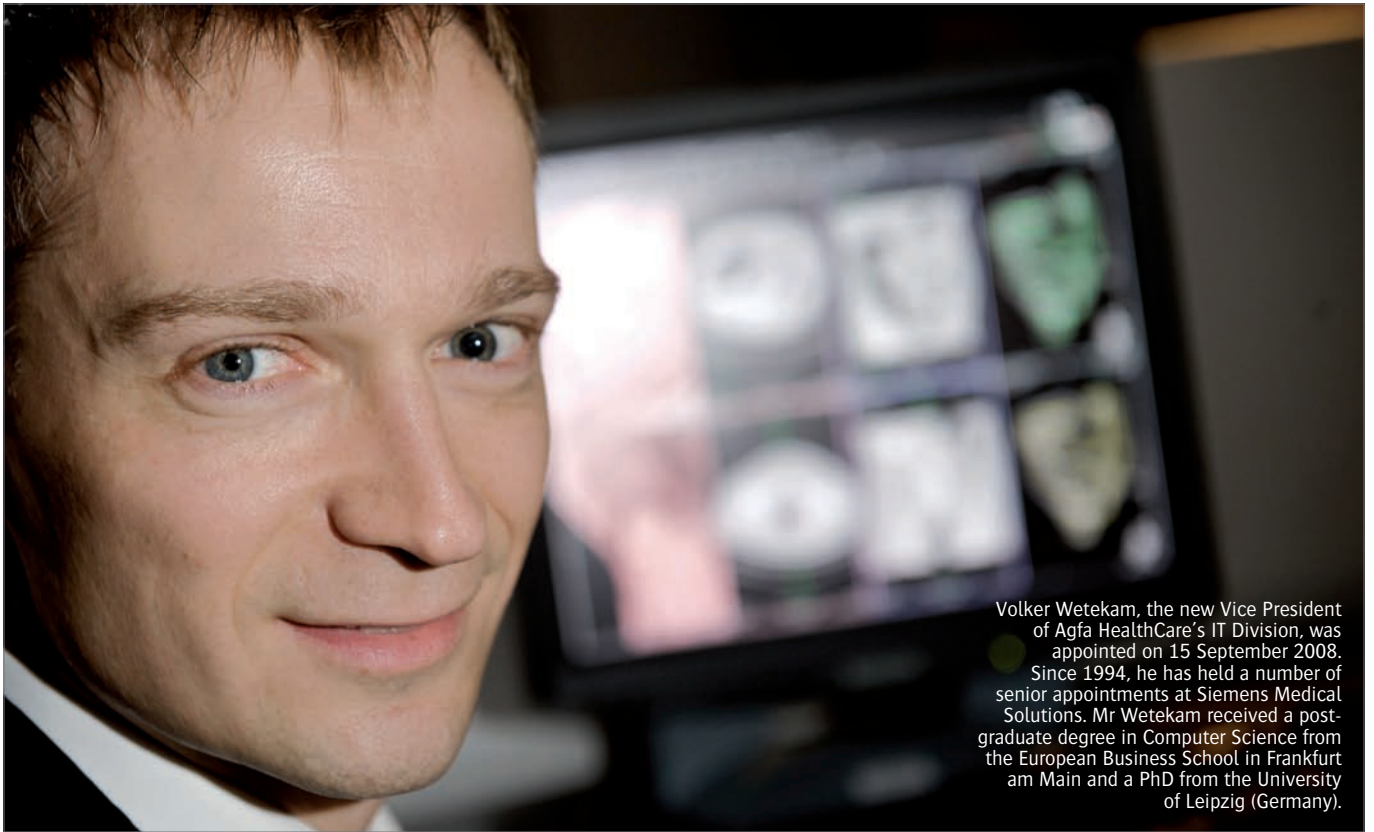
**ERIC MAURINCOTTE**  
Chief Strategy and Marketing Officer  
Editor-in-Chief THERE, Agfa HealthCare

## BARCELONA, Mediterranean dynamism in a big city

As one of Spain's major cities, and a top destination for tourists worldwide, Barcelona incorporates the dynamism and openness typical of many Mediterranean cities. But Barcelona has an extra advantage: combining sun, sea and sand with the appeal of

a big city, it offers more attractions than tourists usually have time for. Originally established as a settlement around 230 BC, Barcelona has had many rulers during its long history, and has been influenced by Romans, Moors, French and Italians. As a result of this

– and its staunch nationalistic Catalan roots, culture and arts – Barcelona is recognized as a leading cultural and artistic center in the world. Today, the city counts nearly 1.7 million inhabitants and welcomes over 2 million visitors each year for both business and pleasure.



Volker Wetekam, the new Vice President of Agfa HealthCare's IT Division, was appointed on 15 September 2008. Since 1994, he has held a number of senior appointments at Siemens Medical Solutions. Mr Wetekam received a post-graduate degree in Computer Science from the European Business School in Frankfurt am Main and a PhD from the University of Leipzig (Germany).

# A HEALTHCARE REVOLUTION: PACS DRIVING UNPRECEDENTED QUALITY OF CARE

Interview with Volker Wetekam, Vice President of Agfa HealthCare's IT Division

## Looking back on your career in healthcare IT, what changes have you seen in the business?

"I think everybody agrees that imaging IT has matured quite a lot over the past fifteen years. In the early 1990s, PACS was a standalone, radiology-centric application that primarily served the needs of radiologists. Integration was a new concept at that time: less than 5% of the installed PACS base was integrated with hospital IT infrastructures. However, since the mid-1990s, PACS has moved forward in leaps and bounds. The technical needs of data sharing and accuracy first propelled the installed base up to 60% in markets like Europe and the US. By the end of the 20<sup>th</sup> century, that number had swelled to 95%, establishing PACS as the solution of choice to meet the needs of more and more image-intensive departments."

"As we entered the 21<sup>st</sup> century, healthcare IT synergies matured and PACS took another evolutionary step. Consumer demand in Europe and the US shifted towards extended healthcare IT solutions offering greater system integration and data sharing across entire IT domains. PACS was essentially transforming into a powerful workstation that integrated information and images from multiple sources into a single reporting workflow. It dramatically decreased report turnaround times from days to hours, and from hours to minutes, depending on the specific medical procedure. As an example, consider our integrated RIS/PACS/Reporting solution at the Southern Ohio Medical Center in the US. This customer used the potential of its integrated solution to improve operational efficiencies and speed up

report turnaround from 36 hours to 4, dramatically improving patient care delivery."

## So we can conclude that PACS acceptance, expansion beyond radiology and time savings were the primary changes in the past 15 years?

"Yes, but it doesn't end there. PACS has allowed clinicians to take healthcare to new technological and medical levels. Advanced clinical applications integrated in PACS solutions not only save time, but also allow healthcare practitioners to 'see inside' the human body in new ways. Clinical applications make it possible to fuse, compare and overlay diagnostic images from multiple modalities, supporting more effective and efficient diagnoses. Today, clinical applications are almost a standard – including embedded MIP/

MPR (Maximum Intensity Projection/ Multi-Planar Reformat) for daily routine; registration fusion that fuses images from different modalities; virtual colonoscopy applications that automate the presentation of the colon and assist in disease screening; and advanced orthopedic template and measurement applications that assist in surgical planning and measure treatment effect. And these are only a few examples.”

“The clinical applications have had another important effect: they have introduced PACS to image-intensive departments beyond radiology. An increasing number of cardiologists, orthopedic surgeons, women’s care specialists and so forth are using PACS and its advanced applications for their specializations. It enables them to deliver faster, more accurate care.”

#### **What is the next step for PACS?**

“We are already there. The past ten years taught us that integration and data sharing across image-intensive departments were key to driving more efficient care. This spilled over into the broader healthcare enterprise, with the introduction of integrated Hospital and Clinical Information Systems (HIS/CIS) that support both clinical and administrative needs in a single package. PACS is an integral part of this story as it is increasingly integrated with HIS/CIS solutions. In particular, virtual and Electronic Patient Records (EPR) that allow image, administrative and diagnostic information to be combined and shared across hospitals, regions and countries are more accepted and implemented.”

#### **Is healthcare really moving beyond the hospital walls? What is driving this?**

“The future of healthcare is being determined by economics and the pressures on healthcare providers to do more with less. The call for cost containment has led to the creation of regional and national healthcare networks in many places. These share services, resources and infrastructure to deliver unprecedented healthcare quality. Canada and the UK have long been frontrunners in this field, with their nationwide drives for integrated healthcare. The US and China have taken note of the benefits of this approach. Both markets are implementing concrete measures to deliver more efficient healthcare through IT, and both are focusing on controlling costs, increasing the reach of care and improving its

overall quality. Agfa HealthCare’s significant and successful solutions in the UK and Canada make us a tried and tested partner in these large-scale projects.”

“Our global experience in eHealth has already benefited US customers, such as Ochsner Health Systems in the Southern United States. Agfa HealthCare successfully connected 7 major hospitals and 35 associated clinics under one consolidated solution, providing a complete view of patient imaging data across this entire healthcare network.”

**PACS has allowed clinicians to improve processes (cost, cycle time) and patient care.**

#### **With all of these changes, how do you manage to keep your customers ahead of technology?**

“By maintaining a clear commitment to our customers, we ensure the continuity of our solutions over time. Technologies change, and so do needs. We understand this well: we are now on our 6<sup>th</sup> PACS generation and 4<sup>th</sup> RIS generation. Healthcare doesn’t stand still, and it is our job to help our customers transition to each new level. We ensure that the installed base has access to every new product generation without major upgrades or service disruptions. For example, many of our 1,400 PACS customers have upgraded to our 6<sup>th</sup> generation PACS in the past two years. Recently, the Oregon Health Sciences University in Western United States completed their upgrade to IMPAX 6. The new platform and design allows them to greatly extend their reach into the healthcare community and connect healthcare providers with each other. Our new platforms are also designed to be more plug-and-play. The software allows us to develop and introduce new applications directly into the existing workflows, for a modular approach.”

#### **You state that these solutions have shifted away from being radiology-centric, but aren’t radiology departments your key customers?**

“Our focus continues to be the efficient management of images and information – whether for the

radiologist, cardiologist, other specialist (like nuclear medicine) or referring physician. Healthcare IT has evolved from a radiology-centric initiative to a fully fledged enterprise solution, and we have evolved alongside. Today, we provide key components and services as part of an overall vision for integrated healthcare IT. IMPAX Data Center, for example, is a highly scalable medical image archive that supports industry-accepted methods for linking patient records from across a facility. Its support for IHE Cross Enterprise Document Sharing (XDS) makes it possible to consolidate non-imaging data and link multiple repositories to create the basis for a national healthcare IT network. Combined with our proven diagnostic imaging components, such as IMPAX 6 and IMPAX Cardiovascular, our solution can be flexibly installed and expanded. In this way, costs are controlled even as exam volumes are increasing. We are also always investing in innovative viewing technologies to further embed the image content into the EPR. We build on our knowledge and experience from many successful projects around the world, and can offer our customers a wide range of important services, including solution design, data migration and patient ID integration.”

**Technologies change, and so do needs. We understand this well: we are now on our 6<sup>th</sup> PACS generation and 4<sup>th</sup> RIS generation.**

#### **What are the challenges and opportunities for emerging markets?**

“Much of our success in introducing technology into emerging markets is due to our proven methods of selling and implementing solutions that fit customer needs. Our consultancy approach guides customers to the right solution configuration and implementation model. We have built a firm reputation as the partner of choice for RIS/PACS/Reporting solutions. For example, in Latin America Agfa HealthCare has the number one market share for RIS/PACS/Reporting. Annual growth is over 60% in Chile, Columbia and Brazil, and in 2008 we increased the installed base from

The image shows two tall, slender towers of the Sagrada Família in Barcelona, Spain, under construction. The towers are covered in intricate mosaic patterns of colorful tiles in shades of yellow, orange, and red. Each tower has a large, dark, circular opening near its base. The towers are topped with a decorative structure consisting of a central golden cross-like shape surrounded by a ring of small, dark spheres. The background is a clear, bright blue sky.

BARCELONA INSIGHTS

# CREATIVITY

Admired worldwide as being one of the most unique architectural styles, the work of Antoni Gaudí has greatly influenced the face of architecture in Barcelona. From the very beginning, his designs were different from those of his contemporaries: inspired by forms of nature and adorned with colored tiles arranged in mosaic patterns. **La Sagrada Família** is one of Gaudí's most famous works in Barcelona: a giant Roman Catholic church that has been under construction since 1882 and is expected to continue until at least 2026.

»

23 to 37. At the same time, we were awarded 80% of the projects in Colombia and Brazil from leading institutions. In the Middle East, the adaptation of healthcare IT solutions is advancing, and we have grown from 13 customers in 2007 to 31 – and counting. Most of these institutions have established regional healthcare networks to serve vast geographical areas ranging from one half to a million patient visits annually.”

“In Asia, we recently implemented our advanced HeartStation ECG Management System, which automates

the processing and storage of electrocardiograms, at the renowned Singapore Heart Institute. This facility, which performs 75,000 cardiac investigative procedures and 1,700 surgical operations each year, is the only institution in Singapore with heart and lung transplant programs.”

**Where does the future lead for Agfa HealthCare?**

“We will continue to support our customers in the ever-evolving challenges of healthcare. Our strength

lies in our solid understanding of the healthcare market: with our extensive history in imaging and IT, we can deliver solutions that meet the needs of our customers head-on. But of course this evaluation is not up to us alone. The success of our systems and the satisfaction of our customers are the best measurements of our ability to deliver solutions for a global healthcare population. The rapid growth of our installed base in Europe, Asia, Latin America, the US, Africa, and the Middle East is a reflection of that success.” •

## DELIVERING SOLUTIONS IN AN INCREASINGLY COMPLEX ENVIRONMENT

Interview with Dr. Christian Herold, Chairman of the Department of Radiology, Medical University of Vienna

**The workload of clinicians is increasing. How can healthcare IT vendors support their users to meet this challenge?**

“The introduction of RIS/PACS has been instrumental in many ways in enabling clinicians to manage their increasing workloads. One of the main principles of RIS/PACS design is that it engineers workflows to help users focus on their core tasks, and as a result improve service and patient care. This is achieved by automating repetitive and often time-consuming tasks and by giving the physician access to the right information at the right time. In my specific case, we have seen an exponential growth in diagnostic images during the past five years. This would have been a real challenge without the necessary tools and solutions at hand. For example, introducing a workflow driver supports physicians by automatically managing their workloads and ensuring that the preconditions to start the task are met. They can then deliver more efficient and effective care.”

“With regards to the future, the step-by-step introduction of even more intelligent hanging protocols, which combine automated image rendering such as MPR with image organization, image presentation states and server based rendering, will transform the way in which we work. It will allow us to fully focus on the tasks themselves rather than the task preparation.”

Prof. Christian J. Herold, M.D., is Chairman of the Department of Radiology at the Medical University of Vienna (Austria) and part-time faculty member at the Johns Hopkins Medical Institution’s Department of Radiology in Baltimore (USA). Dr. Herold is the President of the European Society of Radiology (2008/2009).



**RIS and PACS are key drivers in the workflow of imaging departments. How can healthcare IT vendors further extend the value of these applications?**

“The workflow in a clinical practice is often a combination of serial and parallel tasks that are executed based on patient care and business criteria. This concept is ideal for workflow modeling but is not addressed in most RIS/PACS solutions today. RIS and PACS have to evolve and introduce tools that enable automation in persona-based workflows. Another important function will be assigning workflow-related tasks to the different stakeholders (radiologists, clinicians, technologists, secretaries) based on an integrated HIS/RIS solution connecting to PACS. This will truly benefit clinical practices as well as individual practitioners. Agfa HealthCare clearly recognizes this.”

**Today, customers are often challenged by the amount of services necessary to support their products. What do you expect with regards to servicing?**

“Flexibility and standardization are key requirements for keeping the servicing needs of any solution to a minimum, while ensuring quick and efficient service when needed. The more flexible a solution, the more it can be managed; the more it adheres to certain standards, the easier it can be supported. Customers want vendors to deliver solutions that meet these expectations and requirements up front, which enables a better service after installation. With its strong focus on healthcare IT, Agfa HealthCare has made this a priority, while simultaneously ensuring that the individual needs of its customers are met, for example through the ability to customize.”

“Today and in the near future, the challenge for healthcare IT vendors will be to ensure they can continue to deliver optimal service in an increasingly complex environment. Furthermore, they will have to manage such interventions without affecting the work of the end-user.” •

# HOSPITAL-WIDE ONLINE ACCESS TO CARDIOLOGY INFORMATION AT THE AZ IMELDA HOSPITAL IN BELGIUM

IMPAX Cardiovascular from Agfa HealthCare maximizes workflow and allows increased efficiency of care processes

**INTERVIEWEE** Dr. Luc Janssens, Head of the Heart Center  
**HOSPITAL** AZ Imelda hospital, Bonheiden, Belgium

The AZ Imelda hospital in Bonheiden, Belgium, is diligently shaping its future. The implementation of Agfa HealthCare's innovative RIS/PACS solution in 2000 was the hospital's first step towards complete digitization. In May 2007, the hospital's Heart Center took another step when it decided to install IMPAX™ Cardiovascular, Agfa HealthCare's cardiovascular PACS and information management solution, which allows for faster and better-informed decision-making.

## THE NEED FOR AN INTEGRATED CARDIOLOGY INFORMATION SYSTEM

Located in the heart of Belgium, the AZ Imelda hospital in Bonheiden provides a comprehensive range of health services. AZ Imelda's 1,400 employees oversee 550 hospital beds. It was among the first hospitals to implement Agfa HealthCare's IMPAX Radiology Information System (RIS) and Picture Archiving and Communications System (PACS). The hospital's Heart Center (1 of 13 Heart Centers in the Flemish region) made the leap in 2007, first by digitizing its imaging, next its reporting flow. With four echocardiography carts and two cardiac catheterization labs, AZ Imelda's busy Heart Center serves a region of approximately 300,000 people. It conducts an average of 9,000 echo studies and 3,500 catheterization procedures each year, including 1,200 balloon dilatations and 200 electrophysiology studies.

Before Agfa HealthCare's IMPAX Cardiovascular was implemented, the archiving and distribution of cardiovascular images and information did not always run smoothly. Dr. Luc Janssens, Head of the Heart Center, explains: "We have progressed from motion picture film, to VHS, to CD-ROMs. Archiving was space- and time-consuming. In addition, time was wasted transferring media from one department to another, and studies

## AGFA HEALTHCARE'S CONTRIBUTION

- » Reliable partner in the field of hospital IT.
- » Advanced vision on integration.
- » Comprehensive technical and clinical knowhow.
- » Strong project management.
- » Smooth implementation and transition.

sometimes got lost. To solve these practical problems, we needed an integrated, hospital-wide cardiology information system to make our images and reports available at the click of a mouse."

The AZ Imelda hospital had worked with Agfa HealthCare for a long time. "We had complete faith in Agfa HealthCare as a leading supplier of high-quality healthcare solutions. When we decided to digitize the Heart Center, our choice for Agfa HealthCare's IMPAX Cardiovascular was rapidly made," says Dr. Janssens. PACS Manager Eric Verschuere adds: "Agfa HealthCare was the only supplier that could offer an integrated solution supporting the entire hospital. All other companies offered standalone solutions, meaning that part of the equipment had to be installed twice, more interfaces were needed and some actions, such as logging in, would have to be performed twice. We wanted the convenience of working with a single vendor."

## GRADUAL DEPLOYMENT AND STRONG PROJECT MANAGEMENT PROVIDE A SMOOTH TRANSITION

IMPAX Cardiovascular was gradually deployed into AZ Imelda starting mid May 2007. Dr. Janssens: "The skill, the precision and the efforts of both the Agfa HealthCare project team and our own team have led to a smooth implementation, which has reinforced my trust in Agfa HealthCare." A number of key users were designated and they received specific training to get



"Thanks to the IMPAX Cardiovascular solution and a redistribution of the workload, we have already seen an efficiency improvement of 16%. This has enabled us to balance out part of the department's increased activity."

DR. LUC JANSSENS, Head of the Heart Center



"I have the feeling that, for the coming ten years, we now have the tools we need at our disposal: they perfectly match our workflow and can evolve flexibly with our changing needs."

MARCEL CUYPERS, Chief Technologist

acquainted with IMPAX Cardiovascular. They in turn then transferred their knowledge to other users. Cardiologist Dr. Filip Charlier says: "The system is extremely user-friendly. We were able to automatically generate structured reports with just a few mouse clicks after only a brief training."

#### **FASTER AND BETTER-INFORMED DECISION MAKING**

The Heart Center's 16 cardiologists and 19 technologists are now reaping the benefits of the IMPAX Cardiovascular solution. Dr. Janssens says: "The main advantage of the new system is that cardiology information is centralized. Patient data and images – generated by whichever modality in cardiology or radiology – are available online on any workstation in the hospital, immediately after the exam has been performed. Relevant prior images and reports can easily be consulted and comparisons made between studies. The speed of the decision-making process has been increased. Thanks to the IMPAX Cardiovascular solution and a redistribution of the

workload, we have seen an efficiency improvement of 16%. This has enabled us to balance out part of the department's increased activity."

Agfa HealthCare's IMPAX Cardiovascular has also led to improved interaction between the Heart Center's employees. Dr. Janssens continues: "The online availability of images and data is especially useful during our team meetings. In the past, we had to select the images beforehand. Today, we had a meeting with 15 staff members. We could immediately call up any image we needed, including echo images: the surgeons are particularly pleased with this service. Finally, IMPAX Cardiovascular has proven to be a valuable asset in teaching our trainees."

#### **A SOLUTION FLEXIBLY EVOLVING WITH CHANGING NEEDS**

The technologists also feel comfortable with the IMPAX Cardiovascular solution. Chief Technologist Marcel Cuypers comments: "Since the introduction of the system, we've seen our job change. We now spend much less time searching for images and reports in the archives. Generating statistics is also more efficient, as we can easily run queries on the database and generate them automatically. We used to have one FTE handling data entry for the European registries; that data is now being collected automatically, enabling the FTE to concentrate on data quality instead of quantity. I have the feeling that, for the coming ten years, we now have

#### **DID YOU KNOW...**

- » Thanks to the IMPAX Cardiovascular solution and a redistribution of the workload, AZ Imelda has already seen an efficiency improvement of 16%.
- » The surgeons are extremely pleased with the online availability of cardiology images and information.
- » IMPAX Cardiovascular from Agfa HealthCare is used in more than 500 hospitals worldwide.

the tools we need at our disposal: they perfectly match our workflow and can evolve flexibly with our changing needs," he concludes.

The Heart Center is now almost paperless and filmless. In the nursing department, orders and some information are still being distributed on paper. However, with the deployment of Agfa HealthCare's ORBIS™ solution, all nursing activities will be fully digitized as well. The result will be an entirely paper-free Heart Center. •

"Unlike other suppliers, Agfa HealthCare focuses on solutions instead of on products. To develop these solutions, they rely on longstanding expertise in healthcare information systems and on close collaboration with their customers. Simply put, Agfa HealthCare acts as our partner."

ERIC VERSCHUEREN, PACS Manager





BARCELONA INSIGHTS

# HIGH QUALITY

Barcelona contains 68 municipal parks. The total park surface grows about 25 acres per year, with a proportion of 18.1 m<sup>2</sup> of park area per inhabitant. Designed by Antoni Gaudí, **Park Güell** was commissioned by Eusebi Güell, who wanted to create a stylish park for Barcelona aristocracy. This magical park contains amazing stone structures, stunning tiling and fascinating buildings. At the top of Park Güell is a terraced area where you get a wonderful view of the park and of the city. Here you will find the famous multi-colored tiled mosaic seats.

# NEWS FROM AGFA HEALTHCARE



## Agfa HealthCare's IMPAX 6 introduces volumetric management features at SIIM 2009

Agfa HealthCare announced the release of IMPAX™ 6.4, the latest version in the IMPAX PACS product line, at the Society of Imaging Informatics in Medicine (SIIM) annual meeting in the US. IMPAX 6.4 delivers new features and tools to help users in managing complex multi-series studies that are the rule rather than the exception in today's imaging technology.

Agfa HealthCare's IMPAX 6.4 offers an improved navigation workflow for large Computed Tomography (CT) and Magnetic Resonance (MR) datasets for radiologists, clinicians and other healthcare professionals. It introduces new workflow features including 'Active Target', a tool that simplifies multi-planar, cross-sectional navigation and replaces the traditional 'stack' navigation to view areas of interest in all planes simultaneously. IMPAX 6.4 also includes the 'Auto Link' feature that automatically links 'like series' within one study to make navigation through numerous series more efficient. To enact comparative navigation across multiple studies, IMPAX 6.4 provides cross-study series linking. All features employ graphical indications to ensure

that users are aware of where they are in a particular series when navigating. To help manage the distribution of results for large studies, IMPAX 6.4 introduces a 'Key Image Workflow' that automates the presentation of key images via clinical views and Electronic Patient Record (EPR) applications.

In addition, IMPAX 6.4 introduces IMPAX Volume Viewing to assist users in reading volumetrically acquired datasets such as multi-slice CT studies or 3D MR acquisitions. IMPAX Volume Viewing is included as the default MIP/MPR (Maximum Intensity Projection/Multi-Planar Reformat) application with IMPAX 6.4, supporting standard viewing as well as curved MPR and a study comparison workflow. Finally, IMPAX Volume Viewing offers 3D rendering functionality and integrated reporting features.

IMPAX 6.4 further introduces new features for simplified worklist management and a new study claim workflow to allow users to manage the assignment and ownership of particular studies for managed reporting workflow in larger institutions. •

## Agfa HealthCare and Segami Corporation sign agreement to integrate Oasis image processing for nuclear medicine within the IMPAX 6 workflow

Agfa HealthCare announced that it has signed an agreement with Segami Corporation to integrate the Oasis workstation software into its 6<sup>th</sup> generation Picture Archiving and Communications System (PACS), IMPAX™ 6. The solution allows nuclear medicine physicians to review, process and report studies using advanced processing software on their IMPAX workstation.

The introduction of Segami's Oasis software provides nuclear medicine physicians with a uniform reading and processing environment for all

their planar nuclear medicine, SPECT (Single Photon Emission Computed Tomography) and PET (Positron Emission Tomography) studies. It delivers a full spectrum of clinical nuclear medicine and multi-modality applications. Advanced processing and reconstruction, multi-modality viewing and reporting integrated into the IMPAX client's workflow deliver a unified working approach throughout the nuclear medicine department. This solution leads to a substantial workflow improvement, increases user convenience and improves reporting

efficiency. A single sign-on and individual user profile are automatically applied at any IMPAX workstation across all integrated applications, delivering workflow and functionality tailored to each user's needs.

Oasis is a vendor-neutral application for gamma cameras and PET scanners. It adheres to DICOM, IHE and HL7 standards for a consistent and predictable workflow. Oasis is built using the latest technologies, providing a consistent user experience on a stable and high performance platform. •

# ON-SITE OCCUPATIONAL HEALTH CENTER RELIES ON AGFA HEALTHCARE'S PROFESSIONALISM AND EFFICIENT SERVICE IN ITS MOVE TO DIGITAL X-RAY CHEST SCREENING OF EMPLOYEES

Impala Platinum Refinery, the world's second largest platinum producer, invested in Agfa HealthCare's CR and IMPAX PACS solutions to perform obligatory health checks on its employees

**INTERVIEWEE** Dr. Lucas van der Berg; Manager of Safety, Health, Environment and Quality (SHEQ) at the Occupational Health Center  
**HOSPITAL** Impala Platinum Refinery, Springs, South Africa

With more than 55,000 employees and contractors company-wide, Impala Platinum Ltd. Refinery is one of South Africa's largest companies. Until recently, the company used analog film/screen systems to produce all legally required workers' chest exams. There is also an obligation to retain such images for 40 years. In late 2008, the Occupational Health Center at one of Impala's major sites switched from analog to digital imaging using Agfa HealthCare's CR 30-X computed radiography system and IMPAX™ 6.0 Picture Archiving and Communications System (PACS) for image networking and storage.

## ON-SITE OCCUPATIONAL HEALTH CENTER ANNUALLY PERFORMS 5,000 X-RAY SCREENINGS OF REFINERY WORKERS

Impala Platinum Ltd. mines, refines and sells platinum group metals as well as base metals like nickel, copper and cobalt. One of platinum's major uses outside its precious metal status is the main catalyst in automotive catalytic converters used to reduce emission toxicity of cars, buses and trucks. Springs, South Africa, is home to Impala's two major refineries that produce 99.99% pure platinum from partially refined ore from their Rustenburg mines 250 km away.

The site employs about 1,000 full-time workers year round, but with part-time contractors hired during peak periods, that number can grow to over 3,000. All refinery workers – full time or contractor – must receive an



“Agfa HealthCare offered us the best cost/value ratio with their digital radiography and PACS solutions, and we already knew about their professionalism and efficient service through the many years they maintained our original analog film/screen systems.”

DR. LUCAS VAN DER BERG,  
Manager of Safety, Health, Environment and  
Quality (SHEQ), Occupational Health Center

annual chest x-ray in addition to one at pre-employment and when they exit the company. This is done through an on-site Occupational Health Center, part of Impala's company-wide Safety, Health, Environment and Quality (SHEQ) department. The Springs SHEQ operation employs an Occupational Medicine Practitioner, two Occupational

Health Practitioners, six nurses and a medical secretary. Part of the facility includes an x-ray section run by three of the staff members who are also qualified Supplementary Chest Radiographers.

All of the nearly 5,000 chest x-rays performed on average each year are for screening purposes only. Additionally, the Springs site also contracts its services to interested outside companies who wish to outsource annual, pre-employment or exit medicals.

## THE BEST COST/VALUE RATIO TO CAPTURE, DIGITIZE, DISPLAY AND ARCHIVE DIGITAL CHEST IMAGES

The migration to a fully digital workflow occurred gradually. “We started three years ago by scanning chest exam films and transferring the images to Digital Video Disc (DVD),” says Dr. Lucas van der Berg, Manager of SHEQ at the Occupational Health Center.

## AGFA HEALTHCARE'S CONTRIBUTION

- » CR 30-X system.
- » IMPAX PACS version 6.0.

“But we really sought a more automated, all electronic means of image digitization, display and retention,” he adds.

Dr. van der Berg and top company administrators requested quotations from three different firms to provide systems for digital imaging, which would immediately display images and archive them on a PACS that could also network to other Impala sites as well as to private physicians and regional hospitals. “Of the three firms, Agfa HealthCare offered us the best cost/value ratio,” Dr. Van der Berg says. “We already knew about their professionalism and efficient service through the many years they maintained our original analog film/screen systems.”

The total installation included the Agfa HealthCare NX Lite image identification and quality control interface, a CR 30-X digitizer, an IMPAX 6.0 PACS with diagnostic workstation, server and software as well as the company's archive application that uses the existing data center's Storage Area Network (SAN) to automatically and efficiently archive or retrieve images. An Agfa HealthCare DRYSTAR™ 5302 direct digital imager for hardcopy production was included as well.

### IMPRESSIVE ALL-AROUND PERFORMANCE

Dr. van der Berg says installation was well planned and went very smoothly. “The Agfa HealthCare technical specialists were here the day the systems arrived,” he says. “Within 48 hours,

the CR 30-X system was up, tested and running, and our staff fully trained in its operation. We quickly resumed our normal chest x-ray schedule.”

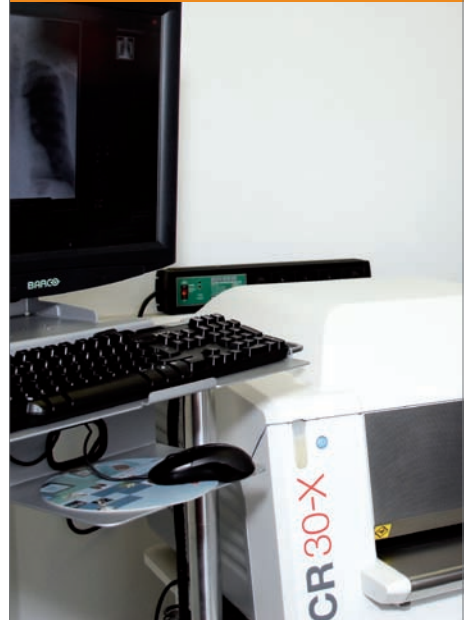
The IMPAX PACS was functional about two weeks later, while the CR 30-X system was fully operational, and therefore did not interfere with daily activities. An unexpected challenge occurring during the installation had a positive outcome, the doctor adds. “The CR and IMPAX systems were configured to work with one manufacturer's servers. However, Impala's company-wide server protocol turned out to be from a different producer. Agfa HealthCare jumped right on the situation, and re-configured its equipment to work on the Impala servers without any cost increase or delays. This was very impressive,” he says.

Since the transition, one key benefit has been the immediate cost saving. “We are saving money because all images are now retained digitally,” the doctor says. He adds: “Digital archiving on IMPAX is extremely efficient, and we now have the capability to electronically dispatch chest images to other Impala locations or a worker's attending physician.”

Finally, the advantages of working digitally cannot be overstated, according to Dr. van der Berg. “It's extremely beneficial to our staff and patients to view images right away and provide prompt feedback,” he says. “The CR system, IMPAX and the respective workstations and software are great systems, and Agfa HealthCare is ahead of the industry with its technology. I really recommend these solutions for all occupational health settings.” •

## DID YOU KNOW...

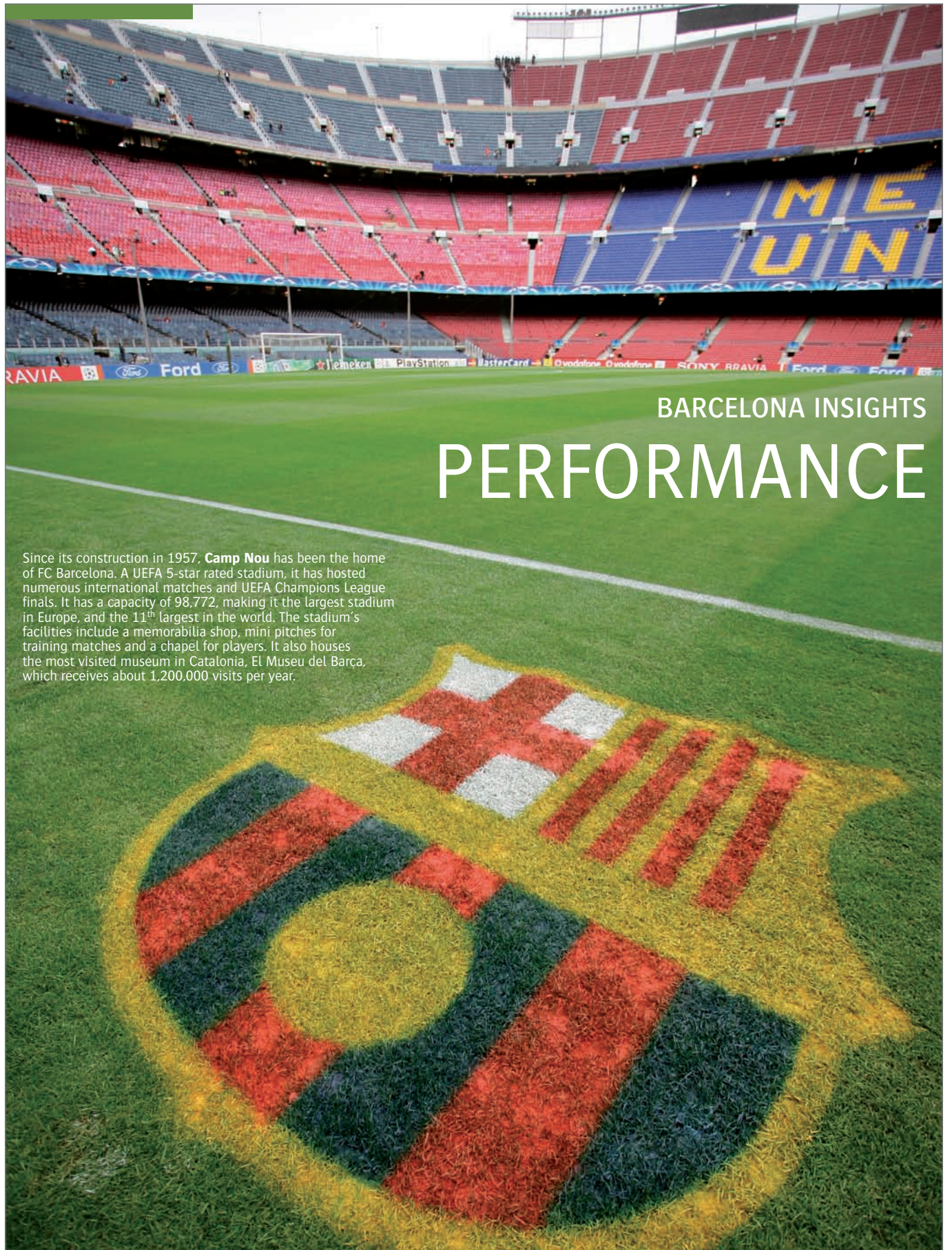
- » South Africa is the world's leading producer of platinum. Last year, Impala Refining's parent company, Implats, produced 1.91 million ounces of the metal – about 25% of global supply.
- » The IMPAX 6.0 server has the ability to automatically 'pre-fetch' all prior imaging for a patient from its hard disc so earlier studies can be easily compared to current exams.



## CR 30-X SYSTEM & IMPAX PACS

- » CR 30-X system is compact, designed for tabletop use in decentralized locations.
- » CR 30-X offers fast image preview, ease of use, and seamless integration with other systems in an integrated workflow.
- » IMPAX 6.0 PACS integrates images and data in a single display, offering huge storage capability and easy retrieval of archived data.





BARCELONA INSIGHTS

# PERFORMANCE

Since its construction in 1957, **Camp Nou** has been the home of FC Barcelona. A UEFA 5-star rated stadium, it has hosted numerous international matches and UEFA Champions League finals. It has a capacity of 98,772, making it the largest stadium in Europe, and the 11<sup>th</sup> largest in the world. The stadium's facilities include a memorabilia shop, mini pitches for training matches and a chapel for players. It also houses the most visited museum in Catalonia, El Museu del Barça, which receives about 1,200,000 visits per year.

# SUPERIOR IMAGE QUALITY OF DX-S CR SYSTEM WITH MUSICA<sup>2</sup> CLOSES THE CR/DR GAP IN DENMARK'S LARGEST CHIROPRACTIC CLINIC

Kiropraktisk Klinik Herning is the nation's first and only chiropractic clinic to use Agfa HealthCare's DX-S CR system. The CR image quality is markedly improved and superior to low-end direct radiography.

**INTERVIEWEE** Dr. Klaus Doktor, Kiropraktisk  
**HOSPITAL** Chiropractic Clinic, Herning, Denmark



## AGFA HEALTHCARE'S CONTRIBUTION

- » DX-S CR system.
- » MUSICA<sup>2</sup> advanced image processing software.
- » NX workstation.

with individual patients paying the balance of their treatment costs. The health service also encourages the clinic to link with nearby Herning Regional Hospital's radiology department. Patients visiting both facilities – the hospital and the chiropractic clinic – tended to be x-rayed twice. To reduce x-ray dosage to these patients, national health policy supports the clinic's chiropractors and hospital radiology staff in routinely sharing digital images using a Virtual Private Network (VPN) between the locations.

This open atmosphere even allows the clinic to send all digital images over the VPN to the hospital's PACS for storage and retrieval when needed, as well as consult with hospital radiologists when, with the patient's permission, prior studies taken at one facility are of value in treating a condition at the other. "By collaborating as a team instead of competitors, the best interest of the patient is properly served," Dr. Doktor says.

## HIGH CONTRAST IMAGES FOR BONE STRUCTURE AND EXCEPTIONAL SOFT TISSUE DETAILS

The clinic's move to digital radiography came shortly after Herning Regional Hospital installed its first enterprise-wide PACS in 2003, an IMPAX from Agfa HealthCare. "After meeting with hospital radiologists, hearing their praise of IMPAX and seeing it in actual use, we felt that this company's solutions would be highly efficacious in chiropractic applications. We decided on two Agfa

The ability to clearly visualize soft tissue and dense bone in a fast, efficient process with minimal x-ray dose led this growing chiropractic group to select Agfa HealthCare's groundbreaking DX-S Computed Radiography (CR) system for all diagnostic imaging at its main facility. The compact DX-S system enhances patient throughput and provides rapid access to digital images. These images are later dispatched and stored on an Agfa HealthCare IMPAX™ solution and other PACS systems at Herning's regional hospital.

## SHARING EXAMS WITH REGIONAL HOSPITALS OVER A VIRTUAL PRIVATE NETWORK AVOIDS DOUBLE X-RAY EXPOSURE: A PROGRESSIVE ENVIRONMENT

Once known as a farming and textile weaving center, Herning is today one of Denmark's leading commercial and industrial hubs. It has twice been awarded Danish City of the Year and is a very progressive place to practice medicine.

"DX-S has lifted us into a new league. It's great to be on the leading edge of technology."

DR. KLAUS DOKTOR, Kiropraktisk

That's the case with Denmark's largest and most technologically advanced chiropractic clinic, the Kiropraktisk Klinik Herning under the direction of Dr. Klaus Doktor, and his team of 25 professionals that include 10 chiropractors and various ancillary staff such as physical and massage therapists. A second office 10 miles away augments the main location in Herning. Both sites specialize in the diagnosis and treatment of various musculoskeletal conditions involving neck and lower back pain. The main location in Herning was opened just five years ago, and at 900m<sup>2</sup> is among the largest and best equipped in Scandinavia.

Denmark's national health service subsidizes the practice up to 25%,

»»

» HealthCare standalone CR systems – CR 25-X and CR 35-X – for each location, as we were convinced that Agfa HealthCare’s technology expertise in CR would equal their expertise in PACS.”

The progression to DX-S came two years later when Dr. Doktor attended the Radiological Society of North America (RSNA) annual meeting in Chicago and saw a demonstration in Agfa HealthCare’s exhibit. “DX-S imaging is fantastic and of superior quality to other systems,” he says. “With this system, you can produce high contrast images for bone structure as well as superbly see soft tissue details. And this performance is achieved using minimal x-ray dose compared with other CR or analog systems.”

The unit’s MUSICA™2 software gives the DX-S the ability to properly display tissue and bone in a single exam, thereby eliminating multiple exposures and as a result cut dosage. “The CR image quality is markedly improved and superior to low-end Direct Radiography (DR),” he says. “I fully expect DX-S to close the CR/DR gap here.”

**SUPERIOR IMAGE QUALITY, FULL COMFORT FOR THE PATIENT**

Another key DX-S benefit for chiropractic use is its ability to produce exceptional images from patients that stand or sit. “Unlike hospitals where patients usually

lie on x-ray tables, chiropractic studies are almost exclusively performed with the patients on their feet, since we find weightbearing studies very valuable in diagnosing spinal complaints,” the doctor says.

He also adds the speed of image acquisition and first display. Because plates move quickly through the DX-S digitizer, there is practically no delay in acquiring the next exposure, which speeds exam time while making it more comfortable for the patient.

“When I first saw DX-S images at RSNA, I assumed these were atypical examples performed under optimal laboratory conditions,” Dr. Doktor says. “I didn’t believe it could perform this well in everyday clinical use. I was mistaken. Since its installation six months ago, the DX-S has more than demonstrated its ability to handle the rigors of a busy practice. It’s remarkably reliable in producing excellent image quality again and again.”

He adds: “We feel DX-S has lifted us into a new league. In the Danish chiropractic environment, where images are being shared with radiologists and other medical colleagues, it’s satisfying that the system is of the highest quality, precision and accuracy in helping diagnose and treat patients. It’s great to be on the leading edge of technology.” •

**DX-S CR SYSTEM**

- » Provides a level of image quality, speed and flexibility with lower doses that exceeds most CR systems.
- » Designed for near-patient use. Allows clinical staff to remain in-room (or next to the patient) during exams.
- » Superior image quality allows for dose reduction.



**DID YOU KNOW...**

- » Denmark has about 200 chiropractic clinics, with more than half performing digital radiography.
- » In addition to the regional hospital’s PACS, the Kiropraktisk Klinik Herning stores its images on a national chiropractic system called ‘KirPACS’ for added redundancy. KirPACS is based on an Agfa HealthCare IMPAX solution.
- » The University of Southern Denmark is now home to the nation’s primary chiropractic college. Until recently, most Danish students learned chiropractic technique primarily in Western Europe or America.



# CARDIOLOGY IT – QUO VADIS?

Paul Varghese, M.D., Medical Director, Cardiovascular Imaging Informatics, Agfa HealthCare

Ciprian Albu, M.D., Associate Medical Director, Clinical Applications (Cardiology), Agfa HealthCare, MBA

Cardiovascular disease is responsible for 12% of all fatalities worldwide – an estimated 7.2 million deaths each year, according to the World Health Organization (WHO).<sup>1</sup> By 2030, the WHO expects this to increase to nearly 15% of all deaths in men and over 13% in women.<sup>2</sup> Policy makers and clinicians focus on delivering new technologies to drive the prevention, detection and treatment of cardiovascular disease. Significant developments in the field of cardiovascular imaging (echocardiography, coronary angiography, cardiac CT and MRI, nuclear cardiology, etc.) have augmented specialists' ability to 'see inside' the human body. But these advanced imaging techniques pose their own challenges: while they deliver improved diagnosis, they also create an enormous growth in data volume. Additionally, the techniques do not address the overall management of the increasing number of patient cases, or the associated clinical workflows. Two critical questions must be addressed. Firstly, how will cardiologists manage the increase in patients? Secondly, how will the additional image and data volume relating to these patients be made available to the clinician where and when needed? Add to that the pressure of rising costs in healthcare and it is obvious that there is a significant challenge to be tackled.

## CARDIOLOGY IT SOLUTIONS IMPROVE PATIENT CARE

Every challenge has its answers, of course. Modern healthcare IT systems – Picture Archiving and Communications Systems (PACS), Cardiovascular Information Systems (CVIS), data centers and Electronic Patient Records (EPR) – address both the data volume and the workflow issues. As they also improve overall patient care while reducing costs, there is much to be said for the value of healthcare IT solutions in this discussion. Cardiology-specific solutions deliver critical value-added features that improve overall workflow management and increase cardiology department efficiency. At the same time, they are being integrated directly with the hospital enterprise. Data collection, distribution and availability of information are almost instantaneous,

which enables better patient management, clinical data integration, report generation and archive retrieval. The recent expansion into order processing, scheduling, analytics, reporting and billing integration reduces entry delays, clinical errors and billing inaccuracies, and improves overall patient record keeping. By decreasing the time necessary to see, diagnose and treat a patient, it also improves patient care.

## FOCUS ON THE PATIENT AS A WHOLE

Despite these advantages, we still see a significant gap in the overall implementation of advanced cardiology IT solutions in hospitals worldwide. Recent figures show that less than half of all US hospitals and major care facilities, and less than one third of all hospitals in Europe, have adopted them. As a result, a consolidated and funneled approach to dealing with the rising number of heart patient cases is still some way off. Cardiology PACS penetration obviously needs a boost. Nevertheless, cardiology IT solutions are slowly advancing in the clinical landscape in Europe, the US and Asia. Most early adopters have been large university hospitals and major hospital networks. The rather slow acceptance can be explained by some industry realities. To begin with, cardiologists look for a dedicated solution to meet their specific needs. Radiology PACS, for example, does not always answer this requirement. A purely image-centric design is not suitable for cardiology, which must focus on the patient as a whole and not just on images and procedures. In cardiology, the use of non-imaging systems (hemodynamic monitoring systems, ECGs, electrophysiology, device recorders, monitors, etc.) requires additional integration of data, increasing the overall complexity of a dedicated solution. Simply said: images alone are not enough, and cardiologists want focused systems that deliver quantifiable data and workflow management for their specialty.

## THE BIGGER PICTURE

Additionally, even hospitals that have already adopted cardiology IT solutions

are facing challenges in integrating various information systems with each other. Systems used for the management of the Cardiac Catheterization Lab, echocardiography, stress testing, nuclear cardiology, electrophysiology and ECG departments need to be functionally cross-linked in order to support the demanding clinical workflows of the cardiology department as a whole. In short, there is a bigger picture to be considered. Finally, most hospitals and care facilities are on increasingly stringent budgets. They integrate solutions in a piecemeal fashion to better manage those resources, so many first introduce a basic PACS system and then integrate specialties like orthopedics, nuclear medicine and cardiology in a second phase. The industry challenge therefore is to offer solutions that can be integrated. This in turn drives interest, acceptance and implementation.

## 'ALL INCLUSIVE' SOLUTIONS

Agfa HealthCare understands these challenges. Our cost-effective solutions are either incorporated within our overall PACS offering or can integrate with most legacy or current PACS systems in the market. With specialized modules, they offer cardiologists and other clinicians an 'all inclusive' solution for their clinical practice. We appreciate that volume management, clinical workflow adherence and appropriate clinical specialty content are key elements to meeting the expectations of clinicians and hospitals alike. This awareness drives our cardiology portfolio: a dedicated, reliable set of solutions that meet the clinical and administrative needs of cardiologists, and consequently support a cumulative vision towards managing the number one preventable cause of death worldwide. •

<sup>1</sup> World Health Organization data: The 10 leading causes of death by broad income group (2004), updated 2008, Fact sheet N°310.

<sup>2</sup> World Health Organization data: The Atlas of Heart Disease and Stroke, Judith MacKay and George A. Mensah, pp. 74-75.

BARCELONA INSIGHTS

# SCALABLE GROWTH

Overlooking miles of Barcelona beachfront and the grand vista of Port Olímpic, the **Hotel Arts** dazzles guests with its striking architecture and commanding location. Renowned for its 24-hour personalized service, 43<sup>rd</sup>-story spa and innovative dining, this luxurious hotel is a distinctive location in Barcelona. A member of The Ritz-Carlton family of hotels, the award-winning Hotel Arts features 483 sea or city view rooms, terraced gardens and outdoor swimming pool, five restaurants offering a range of Mediterranean cuisine, a spectacular collection of Spanish contemporary art, and over 1,000m<sup>2</sup> of function space for meetings and special events.



# AGFA HEALTHCARE EXPANDS VENDOR COMPATIBILITY WITH LATEST RELEASE OF IMPAX HEARTSTATION ECG MANAGEMENT SOLUTION

Agfa HealthCare has released its latest version of IMPAX™ HeartStation, a comprehensive management system for electrocardiograms (ECGs). The solution features expanded compatibility with ECG carts from multiple vendors (GE, Philips, Mortara, Esaote, Schiller). Built on standards-based architecture, the system easily integrates into the existing hospital and clinic IT infrastructure and ECG workflows. IMPAX HeartStation is designed to serve the diverse needs of large and small institutions and their differing analysis and workflow patterns within a single, unified system.

By including ECGs as part of the patient's web-accessible cardiology record, IMPAX HeartStation provides the tools for speedy critical decision-making for patient care.

It eliminates reams of paper and can boost productivity by facilitating rapid review of computer-generated reports and easy comparison of ECGs from multiple devices. It provides full integration to any CVIS (Cardiovascular Information System) and enterprise workflow, and reconciliation of patient demographic data, orders and billing.

Agfa HealthCare's IMPAX HeartStation provides a single point of access to historical and current ECG exams in a universally familiar, easy to read format. Study data from multiple exams can be rapidly accessed, allowing for review, serial comparison, editing and electronic signing of ECGs throughout the hospital enterprise. Comprehensive information sharing with IMPAX Cardiovascular, Agfa HealthCare's cardiovascular image management and reporting solution, or any CVIS or EHR (Electronic Health Record) means that ECGs can be accessed within the patient record and reviewed along with other images and reports. •

# AGFA HEALTHCARE INKS AGREEMENT WITH BELGIAN ZNA HOSPITAL GROUP TO DELIVER ITS IMPAX 6 AS A SERVICE

ZNA (Ziekenhuis Netwerk Antwerpen – Hospital Network Antwerp) will soon be the first Belgian hospital to work with an Application Service Provider (ASP) model for all its Radiology IT needs across its nine hospital sites. To achieve this ZNA will make use of

Agfa HealthCare's IMPAX™ 6 PACS (Picture Archiving and Communications System) to support and centralize its diagnostic and clinical imaging needs, with the applications and images being hosted and managed remotely at Agfa HealthCare's advanced data

center facilities in Mortsel (Belgium). The solution will meet the imaging needs of 37 radiologists, a nuclear medicine specialist and over 600 clinicians across the ZNA facilities.

ZNA is Belgium's largest hospital group and one of Europe's top ten hospitals in size, counting a total of nine sites and about 2,500 beds. It serves over 1 million inhabitants in the Antwerp region. The hospital group manages over 400,000 radiology exams annually.

Agfa HealthCare's IMPAX will integrate all existing radiology solutions at ZNA into its centralized workflow including an existing RIS (Radiology Information System)/Speech system from Agfa HealthCare, a third party EPR (Electronic Patient Record) and other existing IT subsystems. As part of the agreement, the company will also integrate a number of Agfa HealthCare's advanced clinical applications into the solution, including 3D rendering, orthopedic and nuclear medicine software. •



Dr. Frank Rademakers is a Professor of Medicine and Cardiology and Medical Director at the University Hospital of Leuven (Belgium), which he joined in 1998 following an extensive career at the University of Antwerp. Apart from his responsibilities at the hospital, Dr. Rademakers teaches cardiovascular sciences at the Catholic University of Leuven. He presently chairs the Council on Cardiovascular Imaging of the ESC and heads the European Council on Cardiovascular Imaging, joining radiologists, cardiologists and nuclear physicians.



## IMPROVING EFFICIENCY IN CARDIOLOGY WITH RADIOLOGY PACS AND CVIS

Interview with Prof. Dr. Frank Rademakers,  
Medical Director University Hospital Leuven

### **If you look back at the past ten years, what has changed in cardiology?**

“I think a primary change we have seen over the past ten years is a move towards new imaging technologies and clinical applications, which enabled cardiologists to significantly improve their overall diagnostic ability. We are able today to evaluate the heart with the use of advanced Echo, Computed Tomography (CT), Positron Emission Tomography (PET), Magnetic Resonance Imaging (MRI), and so on. Stand-still heart images were replaced by cine-loops and the limitations we faced with Echo have been corrected by the arrival of, for example, MRI. When I started my career, an electrocardiogram (ECG), a chest x-ray and an M-mode echocardiogram were the only real viable techniques driving non-invasive heart analysis. Although they were effective and remain key diagnostic tools today, they were also limited when used on their own, as they

failed to deliver relevant quantitative information.”

“This brings me to the second and most important change we have seen in the past ten years: the introduction of new technologies that allow us to quantify results. Primarily driven by the introduction of 2D Echo and new imaging technologies such as CT, PET, MRI, and so on, cardiology has become much less about assumption, based on qualitative images, and much more about facts, based on numbers. Patient follow-up is based on objective quantitative data rather than on qualitative and subjective evaluations. This has made diagnostic imaging a core element in our field. This in turn opened up a new field in cardiology, as with figures in hand, we are in a position to quantify studies and take our field into a new dimension – advanced research, evidence-based medicine and cardiovascular guidelines.”

### **You could say that PACS (Picture Archiving and Communications System) and CVIS (Cardiovascular Information System) are a relatively new phenomenon in Cardiology. What is your vision on their use and functionality?**

“Both PACS and CVIS have brought clear benefits to improving overall efficiencies in cardiology. Cardiologists often require in their diagnostic or therapeutic reasoning multiple sets of images that can contain anything from a few to several hundred images, and, at times, from different modalities. Being able to call up these images and apply advanced clinical applications to support the quantification of results is a major boost in our ability to diagnose patients more effectively and more efficiently.”

“The consolidated availability of digital data and images in cardiology has significant implications on patient management in multiple hospital

locations. Patients can move around various campuses and still data is available at all times to all the doctors involved in their care. Data interpretation and second opinions are greatly enhanced and university hospitals can use this centralized information for teaching and research purposes.”

“Another clear benefit of PACS is the ability to call up images, reports, diagnoses, both past and present, while we are actually with the patient. Cardiologists have a dual role to play – on the one hand the interpretation of the images and data, while at the same time ensuring we are providing treatment for the patient. Before PACS we would spend a significant amount of time sorting through paper files and reports and looking at images before we saw the patient. Today, this task can be performed in minutes, with the patient in the room – a huge time saving and a clear benefit to us all.”

#### **Where do you think current solutions will or can expand to?**

“From my perspective, the ability to share data within and beyond hospital walls is where the future of PACS lies. This is something that radiologists have long understood the benefits of and have already accepted. Cardiologists still need to be convinced further. On the other hand if you look at the potential of data sharing for driving research, teaching and the ability to consult other specialists for interpretation of some challenging cases, there is a strong argument there that needs further promotion. As the amount of data we receive increases, PACS and CVIS will play an important role in enabling us to manage not only our workload, but to do so efficiently.”

“Additionally, the future development of diagnostic and therapeutic care programs in Cardiology will heavily rely on the availability and interpretation of digital data, extracted from the PACS, CVIS and HIS (Hospital Information System).”

#### **Do you see diagnostic standardization as a key component to driving more acceptance of image and data management solutions in cardiology?**

“Diagnostic standardization is key to driving efficient healthcare: I am convinced of this. However, before we can talk about standardization, we should first ensure that we have driven acceptance. At the University Hospital of

Leuven we have reached a point where the different clinical specialties dealing with diagnostic imaging have achieved this level of acceptance, and are now moving towards this standardization.”

**As the amount of data we receive increases, PACS and CVIS will play an important role in enabling us to efficiently manage our workload.**

“Specifically in the framework of the multidisciplinary European Council on Cardiovascular Imaging, we have brought together all the different specialties dealing with diagnostic imaging and are currently developing an accepted workflow methodology to dealing with, in my specific case, cardiovascular diagnosis. Because two or more clinical specialties are involved (in imaging that would mostly mean radiology, nuclear medicine and cardiology), having concrete workflows and agreements on which modalities will be used for analysis, and under which circumstances, is an important step to improving overall efficiencies and results. The aim is relatively simple: to deliver an accepted patient ‘pathway’ dependent on the diagnostic needs. We want to answer the specific clinical questions that drive the need of an investigation in the most efficient and simple way. That means that a single patient, with a specific medical condition, in combination with other factors such as age, gender, body mass, co-morbidities, and so on, will be identified and categorized before diagnostic screening. The result of this analysis will then concretely define which modalities will be required to achieve the best result, rather than subjecting a patient to different modalities which may, in the end, not provide relevant or sufficient data. The aim is to implement this standardized workflow as a standard practice for all cardiologists within the facility.”

“The approach is, in its own right, quite simple but its eventual implementation will nevertheless be complex, given the many thousands of patients our facility treats annually.

The path that a patient will follow and the modalities used to help us identify and diagnose their condition will be pre-defined in around 85% of all cases we see. In about 15% we will need to apply more complex paths, as the patient’s condition will not ‘fit’ within the standardization. But again certain standards will be applied here, be it more complex. Furthermore, the development and eventual implementation of such accepted ‘pathways’ will also play an important co-operative role. The fact that we have put all clinical specialties around one table to plan and develop such an approach has also drastically increased our levels of co-operation, delivering a combined level of expertise to the patient.”

“Finally, the significance of this type of project should not be underestimated. If we do not drive efficiencies on a healthcare level, payers and government bodies will drive them for us. Today we are able to drive reimbursements for patients on as many examinations as we consider necessary to diagnose the patient, but as healthcare comes under increasing economic pressure, we will be put under stress to limit this. The technology to support this drive for improved efficiencies, such as PACS and CVIS, are already in place and clinical applications enable us to gather more qualitative and quantitative data from the images we receive. It is now up to us to drive our daily workflow to match these efficiencies more effectively.”

#### **Do you see Cardiology PACS and CVIS playing a bigger role in the larger hospital enterprise?**

“They will have to, for all the reasons indicated above. Add to that the multiplication of data we manage today, driven by Echo, MRI, CT, and so on, and it makes the management of our daily work without a PACS and a CVIS unthinkable. Efficient patient care is also often driven by the expertise of different specialties, and is enabling us to have access to all clinical data through an integrated Hospital and Clinical Information System. This will only enhance our ability to deliver high quality treatment. I also see healthcare IT as a key enabler of the cooperation between the various clinical departments of the hospital enterprise. Data sharing is knowledge sharing, and few would argue that this is not a benefit for clinicians to diagnose disease better, and for hospitals to improve their cost efficiencies and overall patient care.” •

# SLOVENIA'S FIRST PACS IMPROVES RADIOLOGICAL STAFF PRODUCTIVITY AT IZOLA GENERAL BY 40%

Nation's leading center for non-invasive cardiac CT regains profitability by using Agfa HealthCare's IMPAX PACS to integrate images and data throughout facility as well as to physicians' homes

**INTERVIEWEE** Dr. Branko Cveticanin, Head of Radiology Department  
**HOSPITAL** Izola General Hospital, Juzna Primorska Region, Slovenia



## AGFA HEALTHCARE'S CONTRIBUTION

- » IMPAX PACS with 3.5 TB data storage.
- » CR multi-users systems.

General inspires with surrounding natural beauty. It is a regional hospital, covering the Juzna Primorska area with 135,000 inhabitants. During summer, population in the region grows by 40,000 tourists.

CT, MR, CR, abdominal Ultrasound and digital mammography comprise its radiology department. Cardiology's contribution is crucial since Izola General is the nation's leading facility for non-invasive coronary diagnostics. CT designed for cardio imaging is a specialty – 90% of all Slovenian non-invasive diagnostic cardiology cases are referred here. Six cardiologists, four full-time and two visiting, comprise this specialty's medical support, along with residents and ancillary professionals.

Maintaining more than a 70% occupancy rate year long, Izola General's 70 physicians and 680 professional staff are extremely busy. In both radiology and cardiac imaging, the hospital sought to improve process efficiency in delivering these critical services, while at the same time helping both medical professions to be more productive with increased diagnostic confidence.

## DIGITAL NETWORKING IMPROVES EFFICIENCY

The Government of Slovenia has steadily increased healthcare funding and exam reimbursement to its citizens creating a demand for more services from its five main public hospitals, including Izola. "Imaging exams and staff workload steadily grew and nearly doubled compared to previous years,"

In 2005, this major medical and teaching facility installed Slovenia's first Picture Archiving and Communications System (PACS) to support a transformation to all-digital imaging, including Computed Radiography (CR) for general examinations, advanced Computed Tomography (CT) with leading-edge cardiac imaging features, Magnetic Resonance (MR), Ultrasound (US) and digital mammography. The hospital completed the transition from analog to digital healthcare with Agfa HealthCare's IMPAX™ PACS and CR solutions. As a result, imaging processes have improved hospital-wide.

## LEADING FACILITY FOR NON-INVASIVE CORONARY DIAGNOSTICS TREATS 90% OF ALL SLOVENIAN CASES

You couldn't pick a nicer spot for this region's leading healthcare facility. Izola is a municipality of about 15,000 in

"Major cost savings result from considerable time efficiencies with full digital capabilities. They include advantages such as significantly shorter waiting times for first images, allowing the scheduling of more revenue-generating studies and the elimination of physical transport of studies to other hospital departments."

DR. BRANKO CVETICANIN,  
Head of Radiology Department

southwestern Slovenia near the Adriatic Sea. Perched on a rise overlooking the Adriatic is the 297 bed Splosna Bolnica Izola, or General Hospital Izola. While many hospitals overlook noisy city streets and crowded car parks, Izola



DID YOU KNOW...

- » As Slovenia's leading non-invasive cardiovascular diagnostic facility, Izola General Hospital uses Voxar 3D cardiometrics software specially integrated with Agfa HealthCare's IMPAX solution for all coronary analysis.
- » Izola General Hospital recently participated in the 'Patient Without Borders' telepathology project with a hospital in Udine, Italy. Digital microscopy and video conferencing allowed an exchange of images and diagnoses on both sides.

says Dr. Branko Cveticanin, Head of Radiology at Izola General Hospital. "Our traditional imaging systems and processes were inadequate to meet the growing demand. At the same time, our service area was expanding thanks to the region's popularity as a resort, as well as more people viewing Izola as a good place to live year-round."

After deploying various mini-PACS and teleradiology systems between 2001 and 2004, Agfa HealthCare's IMPAX BASIX version 4.5 was installed at Izola General in May 2005. A few months later, an IMPAX version 5.2 was deployed at a sister facility, the Ljubljana Oncological Institute, with a similar IMPAX PACS operational the following year at the General Hospital Jesenice near the Austrian border. All were linked using a fiber optic or Internet-based Virtual Private Network (VPN). Some radiologists also had a workstation placed in their homes to provide off-hours and weekend coverage.

While each PACS solution could operate in standalone mode, the nationwide VPN connections demanded the upgrade of basic communication infrastructure for the secure and transparent exchange of data between hospitals. This included development of an Electronic Patient Record (EPR). Izola General has been leading this nation's teleradiology/EPR effort, which is currently being implemented in all Slovene public hospitals with completion expected in 2010.

Also necessary at Izola General was the transition of all general radiography exams from analog to digital platforms to complement the hospital's other digital modalities, as well as digital compatibility with the national teleradiology network. This was achieved using two Agfa HealthCare multi-user computed radiography systems.

**PAYBACK OF 3 YEARS, 40% RISE IN RADIOLOGY STAFF PRODUCTIVITY AND MAJOR WORKFLOW SAVINGS TAKE RADIOLOGY DEPARTMENT INTO BLACK INK**

The original IMPAX PACS at Izola General was soon upgraded to version 6.3 to match the platform at Slovenia's other public hospitals. "The total conversion from IMPAX BASIX was finished in about two weeks," says Dr. Cveticanin. The transition to the Agfa HealthCare CR solution for general radiography occurred over a few days. This included training by Agfa HealthCare specialists on the system's new user interface and diagnostic tools. "Our goal was to improve efficiency in image processing and distribution throughout the hospital, and we achieved it handily. Radiological staff productivity increased by 40%. We practically doubled our exam numbers since our first IMPAX installation in 2005 using the same number of

people." In addition, new radiological workstations with 1-megapixel monitors were installed in the homes of six Izola general radiologists for use during off-hour emergencies, further enhancing the department's responsiveness. The switch from analog to digital workflows also resulted in major cost savings. "The Radiology Department went from red to black ink within months," Dr. Cveticanin says, "primarily by eliminating traditional processes, as well as the considerable time efficiencies resulting from full digital capabilities. This includes advantages such as significantly shorter wait-times for first images, allowing the scheduling of more revenue-generating studies, and the elimination of physical transport of studies to other hospital departments. We expect to fully repay our PACS investment within three years."

Finally, the image and data archive capabilities of IMPAX PACS easily accommodate the hospital's 3.5 TB annual storage needs, which will soon result in another major saving. "We have a ten year medical image retention law," Dr. Cveticanin says. "The hospital currently has a 200 m<sup>2</sup> film storage room to house all conventional images since 1998. But now that all studies are migrating to digital and archived on PACS, we can soon convert that space into something more productive." •

IMPAX PACS

- » Integrates images and information enterprise-wide or through VPN teleradiology systems. Supports electronic patient record.
- » Full DICOM/HL-7 compatibility links IMPAX to RIS, HIS and a range of modalities, devices and software from other sources.
- » Internet Protocol compatibility permits images/information display on a wide range of computer-based devices, including laptops.



## BARCELONA INSIGHTS

# HERITAGE

The **Christopher Columbus Monument** was built in 1888 in honor of the renowned explorer and discoverer of America. At the center of the Plaça de la Porta de Pau stands a monumental column topped by a statue of Christopher Columbus. The 60m high monument is placed at the site where Christopher Columbus arrived in 1493 after his discovery of America the year before. The statue shows a standing Columbus pointing towards the sea. Oddly enough, he is not pointing in the direction of the new world he discovered.





# IMPAX PACS' UNIQUE ARCHITECTURE INTEGRATES COMPLEX CROATIAN LINGUISTIC REQUIREMENTS WITH HIS AND NATIONWIDE EPR AT ZADAR GENERAL HOSPITAL

EPR and HIS integration, alphabet compatibility and enterprise-wide training in digital workflows are among the unique challenges met by Agfa HealthCare

**INTERVIEWEE** Dr. Boris Bilic, Chief of Radiology  
**HOSPITAL** Zadar General Hospital, Croatia

Integrating a Picture Archiving and Communications System (PACS) with an already existing hospital Information System (HIS) and Electronic Patient Record (EPR) resulted in some extremely unusual challenges in Croatia's Zadar General Hospital. The challenge was to find a company that could customize its solutions to accommodate the Croatian language with its complex alphabet and vernacular. But according to the Chief of Radiology, Dr. Boris Bilic, the open architecture of Agfa HealthCare's IMPAX™ PACS and the company's technical expertise easily addressed some critical obstacles. The Radiology Department significantly improved productivity while using the same number of staff, resulting in a better service to physicians and clinicians throughout the institution.

## A PACS SOLUTION TO INTEGRATE WITH HIS AND NATIONWIDE EPR

A newly independent nation recognized in 1992 by the United Nations and the European Union, the Republic of Croatia has grown both financially and in population. A credit boom in 2002 and expanding tourism has led to a highly stable market economy. It has been accepted for EU membership, and expects to join in the next few years.

Zadar General Hospital is a state-owned, 500-bed regional institution serving about 180,000 residents of this coastal

"Few other large firms we met had Agfa HealthCare's depth of experience and information technology knowledge, not to mention an ongoing presence in our country."

DR. BORIS BILIC, Chief of Radiology

Adriatic Sea community. Continuous population growth in Zadar has increased the demand for healthcare services from this hospital. As a result, the Radiology Department now performs about 85,000 procedures annually, which includes general radiography, Computed Tomography (CT), Magnetic Resonance (MR), digital mammography and Ultrasound (US). The hospital also houses the region's primary cardiac catheterization facility, making Zadar second only to the nation's capital, Zagreb, as a major cardiac center.

## AGFA HEALTHCARE'S CONTRIBUTION

» IMPAX PACS version 6.

In 2006, the Radiology Department under its Chief of Radiology, Dr. Boris Bilic, realized that its conventional workflows and information sharing with referring physicians and staff were inadequate to meet the growing demand. "Creating a hospital-wide EPR – to be connected to the nationwide EPR – required a fully digital workflow integrating a department-wide PACS with the pre-existing HIS," he says. »



## DID YOU KNOW...

- » Croatia is a long, boomerang-shaped country with over 1,000 islands, and as a result telemedicine has always been very important. The first networked teleradiology project took place in 1997: the installation of 35 CT scanners in Croatia's state-run hospitals, and a centralized referral center, forming a nationwide neuroteleradiology network.
- » E-health is on the public authorities' agenda.
- » Zadar General Hospital publishes its own scientific journal twice yearly, 'Medica Jadertina'. It covers biomedicine and health.
- Zadar's basic urban structure derives from the Roman Empire under emperors Augustus and Julius Caesar. The town has many Roman ruins.



## DEPTH OF EXPERIENCE AND INFORMATION TECHNOLOGY KNOWLEDGE TO SOLVE CHARACTER BARRIER CHALLENGES

Dr. Bilic's first challenge was to find a company that could customize its system to accommodate the Croatian language, which is a continuous outgrowth of more than 900 years of Slavic writing combined with vernacular speaking. Modern Croatia uses a Latin-based alphabet developed in the early 19<sup>th</sup> century by a Croat named Ljudevit Gaj. While its roots may be similar to other alphabets in Europe and elsewhere, Gaj's Latin alphabet features many distinct characters and marks used exclusively in this region. "Our locally developed HIS already had these unique characters in its software," Dr. Bilic says. "But any PACS installed in our department had to be able to 'talk' with the HIS using this special alphabet, as well as support a Croatian EPR."

More than a year of research, site visits and presentations lead Dr. Bilic

and his selection team to choose Agfa HealthCare's IMPAX PACS version 6 for Zadar General. Two primary advantages were the company's strong regional presence and a willingness to customize the IMPAX software to display unique Gaj alphabet characters, thereby interfacing with the HIS. "The Agfa HealthCare technical and software specialists showed me how their proprietary PACS architecture could flexibly accommodate our unique needs so we could have something very special in our own language and in a cost-effective manner," he says. "Few other large firms we met had Agfa HealthCare's depth of experience and information technology knowledge, not to mention an ongoing presence in our country."

## 20% PRODUCTIVITY IMPROVEMENT

The IMPAX system was installed in early 2007, taking only five days to implement in the Radiology Department, followed by full integration with the HIS a week later. Images and information

were then available hospital-wide. The challenge turned to training more than 200 physicians and hundreds more clinical staff hospital-wide to use the technology. Under Dr. Bilic's direction, Agfa HealthCare specialists and Radiology Department medical and clinical staff did training jointly.

Dr. Bilic adds his department's workflow has significantly improved. "I can clearly verify a 20% improvement in overall exam speed and reporting efficiency thanks to the IMPAX system. It facilitates faster, more precise communications hospital-wide," he says. In addition, the department calculated its first annual cost savings last year, which was more than 100,000 EUR.

According to Dr. Bilic, two future projects involve expanding PACS to the cardiac catheterization laboratory and installing Agfa HealthCare's Computed Radiography (CR) systems in general radiology. This will make the entire facility digital. "I prefer working with large companies with all levels of technical expertise at their disposal, which are flexible enough to handle the specialized needs of customers on the front lines," he says. "My expectations were met and often exceeded by Agfa HealthCare's professionals." •



## IMPAX PACS 6

- » Integrates images and information enterprise-wide through HIS. Supports nationwide electronic patient record.
- » Full DICOM HL-7 compatibility links PACS to a wide range of modalities and devices from other sources.
- » Multi-lingual customization with extended language support for Europe and Asia.

# NIEDERÖSTERREICH STATE GOVERNMENT CHOOSES AGFA HEALTHCARE'S TAILOR-MADE AND USER FRIENDLY CR/DR SOLUTIONS TO HELP FIGHT TUBERCULOSIS

X-ray buses equipped with CR and DR systems drive through the Niederösterreich district to detect tuberculosis

**INTERVIEWEE** Dr. Ulrike Schauer; Wolfgang Kopetzky, Mobile Team

**INSTITUTION** State Government of Niederösterreich

To successfully detect tuberculosis (TB), the state government of Niederösterreich equipped two x-ray buses with Agfa HealthCare's CR/DR (Computed Radiography/Direct Radiography) systems to support its x-ray facilities. Agfa HealthCare was selected as a partner not only because they met the key considerations of reliability, stability and user friendliness, but mainly because of their tailor-made workflow concept. The new digital systems provide rapid access to images, which significantly improves TB screening productivity.

## MASS MOBILE X-RAY SCREENINGS TO HELP LOCATE TUBERCULOSIS

For years, the state government of Niederösterreich performed mass tuberculosis screenings under a program called 'Radiology in the Detection of Tuberculosis'. "The aim of TB prevention is the timely detection of infected people followed by professional treatment and care for a sufficiently long period. The accessibility of at-risk groups plays an important role in this context," says Dr. Ulrike Schauer, who is responsible for the state government's program.

## TWO X-RAY BUSES WITH CR/DR SYSTEMS SUPPORT DEDICATED FACILITIES IN DETECTING TB

Niederösterreich has had a mobile x-ray unit since the 1950s, which was mounted in a railway car. In April 2006

"The systems used on the buses and at the facilities must work smoothly and therefore have to be fast and easy to use. Only this will allow us to examine many patients in a short time."

DORIS SCHÜTT, Team Leader



it was replaced by a bus, equipped with fully digital x-ray technology. In addition, there were 20 exam facilities. "To optimize the fight against TB and increase efficiency, the government decided to progressively reduce these examination and consultation facilities to five, and replace them with a second bus for mobile exams," explains Niederösterreich Health Councilor, Mag. Karin Scheele. This second bus has been in use since September 2008. The five dedicated facilities were then re-equipped with digital imaging systems and linked to a central database with distribution and archiving capabilities.

Today, the two x-ray buses drive to nursing homes, detention centers, refugee accommodation centers, businesses and municipalities in all Niederösterreich districts. About 18,500 digital x-ray exams are performed every year. Some 26,000 examinations are expected each year when the program's final expansion is realized.

"The aim of tuberculosis prevention is the timely detection of infected people followed by professional treatment and care."

DR. ULRIKE SCHAUER,  
State Government of Niederösterreich

## RELIABILITY, STABILITY AND USER FRIENDLINESS ARE KEY

Three considerations were of key importance in selecting a digital solution: reliability, stability and user friendliness. "The systems used on the buses and at the facilities must work smoothly and therefore have to be fast and easy to use. Only this will allow us to examine many patients in a short time," explains Doris Schütt, the Team Leader who manages x-ray bus staff. The images must also be reliably transmitted so they can be examined. The Niederösterreich state government selected Agfa HealthCare's solutions mainly because of Agfa HealthCare's tailor-made workflow concept.

»



BARCELONA INSIGHTS

# CENTRALIZATION

The **Mercat de Sant Josep de la Boqueria** is a large public market and one of Europe's most famous food markets with a very diverse selection of goods: seafood, fruits and vegetables, herbs, delicatessen, breads and pastries, restaurants, artisan products, wine, and many more. La Boqueria's grand iron entrance leads to a fully functioning world of food that throngs with both tourists and locals. The floors are slippery with melted ice and fruit skins and the stallholders are loud – but this all adds to the charm of the experience.





“We can assess the quality of the image directly after being taken. Therefore, the number of repeat shots is close to zero.”

WOLFGANG KOPETZKY, Mobile Team,  
State Government of Niederösterreich

and quality control has an intuitive interface on a simple touch screen that offers complete ease of use at the point of care. Both buses have an Agfa HealthCare IMPAX™ diagnostic workstation.

**REPEAT SHOTS CLOSE TO ZERO AND EXCELLENT IMAGE QUALITY**

The new system offers many advantages, as Wolfgang Kopetzky, a staff member of the mobile team, explains: “We can review the quality of the image on the monitor directly after it has been taken. As a result, the number of repeat shots is close to zero.” Other colleagues are

also convinced of the digital system’s merits: the lower x-ray dose and the excellent image quality. Patients undergoing examination are full of praise for the easy accessibility, comfort and interior furnishing of the buses.

Digital imaging’s advantages are also seen in more productive, mass TB screenings. Images can be acquired, distributed and reviewed much faster than before. The digital system can also quickly locate and display previous or comparison images to help speed TB identification and expedite any needed treatment. •

» The first x-ray bus is equipped with a fully digital ADR Thorax System with an integrated flat panel DR detector. In the second bus, Agfa HealthCare’s highly versatile small footprint digitizer CR 35-X with the NX acquisition workstation, is used. The NX acquisition station for image identification



**CR/DR SYSTEMS**

- » Designed for near-patient use, especially in emergency, outpatient or mobile environments.
- » Offers exceptional speed and flexibility in conducting mobile exams. User interface is quick and easy to learn.
- » Excellent image quality, fast on-screen display and the ability to manipulate or enhance exams reduces repeat rates. This contributes to lower x-ray doses.

**DID YOU KNOW...**

- » The World Health Organization (WHO) reports that nearly 2 billion people – one third of the world’s population – have been exposed to the tuberculosis pathogen.

# CR SOLUTION AT ISLE OF WIGHT MUSIC FESTIVAL REDUCES AMBULANCE TRANSPORT OF INJURED FANS

Agfa HealthCare's DX-S CR solution helps NHS hospital cut dose with image quality comparable to DR, while its flexibility supports x-ray service on festival site

**INTERVIEWEE** Diane Adams, Diagnostic Imaging Manager  
**HOSPITAL** St. Mary's Hospital, Isle of Wight, United Kingdom



## AGFA HEALTHCARE'S CONTRIBUTION

» Three DX-S CR systems, spread over 2 sites.

Resonance (MR) unit. Six radiologists, 40 radiographers, a nurse and various support professionals comprise a total radiology staff of 74.

## DX-S CR SYSTEM EXCEEDS IMAGE QUALITY EXPECTATIONS

In 2006, the hospital began replacing x-ray equipment that was fifteen years old. "We tendered for Direct Radiography (DR) units that were installed in three x-ray rooms," says Diane Adams, Diagnostic Imaging Manager at St. Mary's. "However, we required a more flexible solution for some of the more difficult trauma studies, so we evaluated various basic CR systems." Diane Adams adds that for years, Agfa HealthCare provided many products, services and technical support to the department. "Their products are reliable and they have excellent customer care," she says. So the hospital agreed to assess Agfa HealthCare's new DX-S CR system when a unit was provided to them.

"The DX-S system was the one CR solution that provided images comparable to entry-level DR with similar dose levels, while giving radiographers the flexibility to perform intricate trauma exams," she says. The hospital was so impressed that it purchased three DX-S systems, which have been placed in a non-DR fluoroscopy room and a satellite location performing general radiography. "Prior to DX-S, these areas had to use higher doses to produce CR images that were not as good as the main DR equipment," she adds. "Now, with DX-S, images from these locations match the quality achieved department-wide and harmonize the look of our exams."

Excellent image quality, lower patient radiation doses and harmonized imaging throughout the department: these are the key benefits seen by radiology professionals at the Isle of Wight's St. Mary's Hospital after the installation of three Agfa HealthCare DX-S Computed Radiography (CR) units. And in a new application, the system's portability facilitates its use in a specially designed ambulance that provides on-site x-ray services during the island's popular music festivals.

## GROWING POPULATION DURING SUMMERTIME CALLS FOR MOBILE HEALTHCARE SOLUTIONS

The Isle of Wight is a small island off England's south coast measuring about 40m<sup>2</sup>. It is separated from the mainland by roughly four miles of water known as The Solent. While the year-round population is around 138,000, that number doubles each summer due to tourism. Overall, the island annually hosts nearly 2.8 million visitors.

The island's healthcare is provided by the United Kingdom's National Health Service (NHS) through a Primary Care Trust (PCT), a new organization that

"The DX-S system was the one CR solution that provided images comparable to DR with similar dose levels, while giving us the flexibility to perform intricate trauma exams."

DIANE ADAMS, Diagnostic Imaging Manager

commissions all NHS services here. It provides acute care primarily from St. Mary's Hospital in the island's main town, Newport. Ambulance, community and mental health services are also provided through the PCT.

A district general hospital, St. Mary's employs 3,000 people, has 477 beds and five clinical directorates covering all general and acute medicine, as well as pediatrics, intensive care and accident/casualty among other areas of expertise. There are also close links with mainland NHS Trusts to provide specialty health offerings such as oncology, renal medicine and breast surgery.

In addition to general imaging, the hospital's Radiology Department has a whole body Computed Tomography (CT) scanner, along with one Magnetic

## DID YOU KNOW...

- » In addition to mobile x-ray service, the Jumbulance can also serve as an off-site intensive care unit or mass causality incident vehicle.
- » The DX-S is also ideally suited for pediatric and point-of-care general radiography as well as accident and trauma use.



“From a hands-on standpoint, the equipment is fast and easy to use, which permits greater patient throughput,” says Amanda Shaw, Superintendent Radiographer at the hospital. “Staff are also happy that they achieve the desired image quality with a lower dose, because it enhances their professional skill and attitude.”

### DX-S PORTABILITY IS A BENEFIT AT OFF-SITE EVENTS BY REDUCING AMBULANCE TRANSPORT BACK TO HOSPITAL

The Isle of Wight is renowned for its annual music festivals hosting rock musicians and an international jazz event. The rock festival in particular grows bigger each year, with 2009’s affair running three days, featuring over 50 bands and attracting 60,000 attendees. Four years ago, the PCT introduced a larger than normal ambulance called ‘The Jumbulance’, capable of transporting four

patients on stretchers simultaneously. In 2006, St. Mary’s Hospital placed one of its DX-S systems and an x-ray couch in The Jumbulance to offer on-site x-ray services to festival goers as part of its overall on-call medical support.

The vehicle parks next to the medical tent and any injury requiring x-ray is examined there. “By being on-site, we do not only reduce the need to transport patients needing x-rays back to the hospital’s Emergency Department,

#### DX-S CR SOLUTION

- » Provides image quality and dose reduction comparable with entry-level DR systems.
- » Designed for near-patient use, providing maximum flexibility for emergency trauma applications.
- » Fast throughput with reduced wait times for cassettes, which facilitates more exams in short timeframe.

but we also free up ambulances that would have to drive to the festival and back responding to a call. The festival site is only 1.5 miles away from the hospital, but travel time can exceed an hour in heavy island traffic when a big event is underway,” says Amanda Shaw. As the festival grows, so do injuries requiring x-rays. “In the first year, we imaged five or six people at most,” says Diane Adams. “Last year, we did twelve in one night.”

The DX-S unit and a mobile x-ray unit are easily loaded onto The Jumbulance. The DX-S’ compact design helps it perform admirably in the vehicle’s confines and it provides the same exceptional image quality as in its normal hospital setting, allowing clinicians to make diagnostic decisions on-site. Finally, performing x-rays on-site reduces the number needing attention in the hospital’s Emergency Department, which frees up the facility for other serious cases.

Up to 10 radiographers provide coverage during the three-day event. “It is fairly unusual to have x-rays taken at a music festival,” says Amanda Shaw. “But our young radiographers like the event and happily agree to cover for the luxury of free VIP passes.” •



# When exceptional image quality meets high DR productivity

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Meet the DX-D family from Agfa HealthCare



It is not often you meet your perfect partner. But, when it comes to delivering superior image quality with maximum productivity, Agfa HealthCare's integrated digital rooms are your perfect match. Building upon a history of imaging excellence, they use MUSICA<sup>2</sup> image processing for DR. Body-part independent, the automatic image processing provides the highest image resolution. Agfa HealthCare's DX-D systems also use the same powerful NX workstations proven on Agfa HealthCare's CR systems worldwide. This offers rapid preview and HIS/RIS/PACS connectivity. It also provides technologists with familiar image management across both CR and DR for maximum productivity with a minimum learning curve. Since you deserve exceptional image quality and high efficiency, you should plan to meet Agfa HealthCare's DX-D soon. **Healthcare Transformation. We'll take you there.**

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